AMENDMENTS TO THE CLAIMS

1.   (Currently Amended) An object motion tracing method for tracing the three-dimensional motion of an object having an arbitrarily curved and smooth surface, based on the stereo image of the object concerned obtained in time series, composed of:

an inputting step for inputting a stereographic image frame of the object concerned;

a selecting step for selecting tracing points on a three-dimensional object model corresponding to the silhouette of the object concerned in the stereo image of the object inputted image frame based on the present position of the object concerned;

a sampling step for sampling from the above-mentioned stereo image the corresponding points on the silhouette of the object in the image frame corresponding to respective tracing points on the three-dimensional object model;

a measuring step for measuring the three-dimensional coordinates of the sampled corresponding points; and

a detecting step for detecting the position/posture of the object from the three-dimensional coordinates of those respective tracing points and respective corresponding points and for detecting a detection error, wherein

if the detected error is not small enough, the three-dimensional motion of aforesaid object is traced by continuously repeating each process from the selecting step through the detecting one step toward each frame of the stereo image obtained in time series, or

if the detected error is small enough, the three-dimensional motion of the aforesaid object is traced by continuously repeating each process from the inputting step through the detecting step toward each frame of the stereo image obtained in time series.

2. (Previously Presented) The object motion tracing method according to Claim 1, wherein the three-dimensional geometric model of an object is used to select the tracing points on the selecting step.

3. (Previously Presented) The object motion tracing method according to Claim 1, wherein the three-dimensional coordinates are measured by stereo vision applying stereo correspondence on the measuring step.

4. (Previously Presented) The object motion tracing method according to Claim 1, wherein the three-dimensional coordinates are measured by monocular vision on the measuring step.

5. (Currently Amended) A recording medium wherein an object motion tracing program is recorded for tracing the three-dimensional motion of an object having an arbitrarily curved and smooth surface on the basis of the stereo image of the object obtained in time series, composed of:

an inputting step for inputting a stereographic image frame of the object concerned;

a selecting step for selecting the tracing point corresponding to the silhouette of the object concerned on the ~~stereo image of the object~~ inputted image frame based on the present position of the object concerned;

a sampling step for sampling ~~from above-mentioned stereo image the corresponding~~ points on the silhouette of the object in the image frame corresponding to respective tracing points on the three-dimensional object model;

a measuring step for measuring the three-dimensional coordinates for the sampled corresponding points; and

a detecting step for detecting the position/posture of the object from ~~respective~~ the three-dimensional coordinates of ~~aforesaid~~ the respective tracing points and ~~corresponding~~ respective sampled points and for detecting a detection error, wherein

if the detected error is not small enough, the program for executing the tracing of the three-dimensional motion of the object [by] continuously ~~repeating~~ repeats each process from the selecting step through the detecting ~~one~~ step as mentioned above toward each frame of the stereo image obtained in time series, or

if the detected error is small enough, the program for executing the tracing of the three-dimensional motion of the object continuously repeats each process from the inputting step through the detecting step toward each frame of the stereo image obtained in time series.

6.   (Previously Presented) The recording medium according to Claim 5, wherein the program is recorded for executing the selection of the tracing point using the three-dimensional geometric model of an object on the selecting step.

7.   (Previously Presented) The recording medium as according to Claim 5, wherein the program is recorded for executing the measurement of the three-dimensional coordinates by stereo vision applying stereo correspondence on the measuring step.

8.   (Previously Presented) The recording medium according to Claim 5, wherein the program is recorded for executing the measurement of the three-dimensional coordinates by monocular vision on the measuring step.

9.   (New) An object motion tracing method for tracing the three-dimensional motion of an object having an arbitrarily curved and smooth surface, based on the stereo image of the object concerned obtained in time series, composed of:

a selecting step for selecting tracing points corresponding to the silhouette of the object concerned in the stereo image of the object, wherein the rigid body motion parameters of an object between frames of inputted images in time series and the form of the silhouette varying every moment are estimated simultaneously;

a sampling step for sampling from the above-mentioned stereo image the corresponding points on the silhouette of the object corresponding to respective tracing points;

a measuring step for measuring the three-dimensional coordinates of the sampled corresponding points; and

a detecting step for detecting the position/posture of the object from the three-dimensional coordinates of those respective tracing points and respective corresponding points, wherein

the three-dimensional motion of aforesaid object is traced by continuously repeating each process from the selecting step through the detecting one toward each frame of the stereo image obtained in time series.